



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/704,102	11/01/2000	Stuart Courtney	ETK/226	3429

26875 7590 09/30/2003
WOOD, HERRON & EVANS, LLP
2700 CAREW TOWER
441 VINE STREET
CINCINNATI, OH 45202

EXAMINER

SAINT SURIN, JACQUES M

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/704,102	COURTNEY ET AL.
	Examiner	Art Unit
	Jacques M Saint-Surin	2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 14 July 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-24 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: _____ .

DETAILED ACTION

1. This Office action is responsive to the amendment of 07/14/03.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piety et al (US Patent 6,078,874) in view of Van Voorhis (US Patent 5,059,901).

Regarding claims 1 and 13, Piety et al. ('874) discloses:

a data collector (machine data collection 10, see: Fig. 1), comprising:

a housing (hand-held sensor unit 30 includes a housing, see: Figs 1-2., col. 2, line

41;

a vibration signal input on said housing (sensory contact between the sensor unit 40 and machine 12 may be established by placing the sensor unit 40 in physical contact with a desired measurement point as shown in Fig. 1 in order to sense a machine 12 operating characteristic such as vibration, see: col. 4, lines 55-60);

a digital signal processing circuit (microprocessor 70 of Fig. 3) connected to said analog to digital converter (A/D converter 110, see: Fig. 3, col. 6, line 1) within said housing (hand-held sensor unit 40) connected to said vibration signal input, converting a vibration signal received at said vibration signal input to a digitized vibration signal, vibration signal and/or said digital signal (after the requested data has been collected, the tachometer signal and/or vibration signal [or data derived by the sensor unit 40 from the two signals] is downloaded to the HPC 32 and stored in the memory, see: col. 9,

lines 43-47) for the purpose of predictive maintenance. Furthermore Piety teaches for example, a sensor unit 40 having both a vibration sensor and a tachometer, the HPC 32 may prompt the sensor unit 40 to collect both types of machine operating characteristics and after the requested data has been collected, the tachometer signal and/or vibration signal (or data derived by the sensor unit 40 from the two signals) is downloaded to the HPC 32 and stored in memory, see: col. 9, lines 23-27 and 38-47). Note that the HPC 32 of Piety is able of receiving, storing or processing both signals simultaneously.

Although Piety et al. ('874) discloses sensor unit 40 having both a vibration sensor and a tachometer, the HPC 32 may prompt the sensor unit to collect both types of machine operating characteristics, it does not specifically disclose or suggest an optical system within said housing and a receiver circuit converting said received light to a digital signal. Van Voorhis further discloses a laser light diode 11 which emits light, see: col. 4, line 6 and also col. 6, line 1 disclose when the laser tachometer 10 is operated, laser diode 11, energized by appropriate electrical voltage obtained from diode driver produces a high intensity beam 14 of coherent light. Voorhis further teaches a focusing lens/PIN photodiode assembly which senses light reflected back into the optical housing from a reflective target and converts it into an electrical signal and an electronic signal conditioning circuit for processing the output signal from the photodiode to provide electrical pulses for use by vibration monitoring, see: col. 3, lines 9-30. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the data collector of Piety et al. in order to employ the techniques of Van Voorhis because it would have been obvious to one of ordinary

Art Unit: 2856

skill in the art utilizing the above combination to be motivated to recognize that by substituting the tachometer of Piety for the laser light tachometer of Van Voorhis, one would be able to realize a data collector having a vibration sensor and an optical sensor capable of receiving vibration and light signals for the purpose of performing simultaneously reception, storage or processing of both signals in real time in a reliable and efficient manner.

Regarding claim 13, it is a method claim that performs the steps of the apparatus of claim 1. Therefore, it is rejected for the reasons set forth above.

Regarding claims 10 and 22, Piety ('874) in view of Van Voorhis discloses a storage device (base instrument 32 which is a microprocessor including memory (volatile and non-volatile), see: col. 5, lines 14-15 of Piety..

Regarding claims 12 and 24, Piety ('874) in view of Van Voorhis discloses hand held sensor unit 40 includes a housing dimensioned and configured for being hand-held by the operator, see: col. 2, lines 41-42 of Piety.

Regarding claims 2-3 and 14-15, Piety et al. ('874) in view of Van Voorhis discloses sensor unit 40 having both a vibration sensor and a tachometer which meets the limitations of optical system. Furthermore, as discussed above, VanVoorhis discloses a laser diode 11 that produces a high intensity beam 14 of coherent light. One of ordinary skill in the art would have readily recognize the advantages and desirability to provide a laser light diode in order to provide a high intensity beam of coherent light for achieving better results.

Regarding claims 4-5 and 16-17, Piety et al. ('874) does not disclose a laser diode and a collimating lens. Van Voorhis discloses a laser diode 11 and a collimating lens 15, (see: col. 4, lines 12-13 of Van Voorhis). As per claim 5, Piety in view of Voorhis discloses a light detector (photodiode 23) and a beam splitter 19, see: col. 4, lines 7 and 1. One of ordinary skill in the art would have readily recognize the advantages and desirability to provide a laser diode for generating light and a collimating lens in order to intercept and focuses a diverging beam for the purpose of collecting accurate information for obtaining reliable results.

Regarding claims 6-7 and 18-19, Piety does not disclose a receiver comprising a pin photodiode. Van Voorhis discloses a PIN photodiode 23 for converting received light to an electrical signal, see: col. 4, lines 7-8. As per claim 7, Van Voorhis discloses signal conditioning circuit 35 of device 10 that comprises a threshold comparator, see: col. 3, lines 64-66. One of ordinary skill in the art would have readily recognize the advantages and desirability to provide pin photodiode in order to receive reliable information for obtaining better results.

Regarding claims 8 and 20, Piety ('874) does not disclose a laser light tachometer. Van Voorhis ('901) discloses a laser light tachometer for measuring the rotational speed of a selected rotating body, (see: abstract of Van Voorhis). One of ordinary skill in the art would have readily recognize the advantages and desirability to provide a laser light tachometer in order to collect accurate information for obtaining a better measurement.

Regarding claims 9 and 21, Piety ('874) in view of Van Voorhis ('901) discloses a dichroic filter 28, see: col. 4, line 14 of Van Voorhis).

Regarding claims 11 and 23, Piety ('874) in view of Van Voorhis ('901) discloses microcomputer 60 that includes display 122, input keys 126, see: Fig. 1 of Piety.

Response to Arguments

4. Applicant's arguments filed 07/14/03 have been fully considered but they are not persuasive.

In response to Applicant's arguments that "the data collector is an integrated device with analog and digital signal processing and an optical system". The Examiner agrees with Applicant's arguments that the claims recite a common housing, however, the term "integral" does not require a unitary one-piece structure. In re Kohno, 391 F.2d 959, 157 USPQ 275 (CCPA 1968); In re Larson, 340 F.2d 965, 144 USPQ 347 (CCPA 1965).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M Saint-Surin whose telephone number is (703) 308-3698. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800


Jacques M. Saint-Surin
September 23, 2003